
Correspondence to:
Hamid Nasri, MD
Division of Nephropathology, Department of Nephrology, Isfahan University of Medical Sciences, Isfahan, Iran
Tel: +98 311 220 8081
Fax: +98 311 223 5043
E-mail: hamidnasri@med.mui.ac.ir

What is the Real Risk Factor of Urinary Calculi in Iranian Children?

Nakysa Hooman
Department of Pediatric Nephrology, Ali-Asghar Children Hospital and Pediatric Transplantation and Dialysis Research Center, Iran University of Medical Sciences, Tehran, Iran

The earliest reports on urolithiasis in Iranian children in 1980s revealed calcium oxalate and ammonium acid urate were the most common components of urinary calculi.1-3 Since then there have been increasing numbers of published studies about the risk factors of urolithiasis in Iranian children. A cross-sectional study conducted by Akhavan and coworkers4 showed the incidence of urinary calculi in school-aged children in Qom was 1%. They simultaneously studied the urinary excretion of metabolic factors in those school-aged children. Surprisingly, 23% of asymptomatic children without calculus showed hypercalciuria and all of them had hypocitraturia.4 The result should be interpreted cautiously because of potential technical error, different normal ranges for Iranian children, or nutritional factors.

Alamzadeh-Ansari and colleagues studied 152 infants with microlithiasis and urolithiasis by collecting 24-hour urine samples in south-west of Iran.5 In their report published in this issue of the Iranian Journal of Kidney Diseases, they detected that 92% had metabolic disorder, family history of urinary calculi was positive in 67%, and at least one-third of parents had consanguinity marriage. Similarly, the most metabolic disorders in this study were hypercalcuiuria and hypocitraturia. They mentioned neither the rate of mixed metabolic disorders nor the other risk factors such as dehydration, low fluid intake, and the diet of...
infants. In addition, the cut points for abnormal level of urinary metabolic excretion rates are age dependent. The author used a fixed definition that is usually utilized for older children and they are not appropriate for infants aged less than 12 months.

Naseri and colleagues used a more accurate definition of urinary excretion for north-west of Iran, stratified by age. However, their study showed lower percentages of hypercalciuria, hpocitraturia, and hyperuricosuria, and 46% of children had no identified reason for calculus formation. This high percentage of idiopathic group might be related to the fact that calculation of the saturation ratio was not considered in patients with urolithiasis. The other articles from the north of Iran showed the same etiology of hypercalciuria and hyperuricosuria as the core component of calculus formation in children. However, the other epidemiological studies in different regions and various age categories in Iran demonstrated that the urinary calcium excretion is higher in normal children. Cross-sectional studies in school aged children in Jahrom, Urumieh, and North of Iran, and for neonatal period.\textsuperscript{12,13}

Safarinejad determined the reference values for urinary calcium, phosphate, magnesium, sodium, and potassium in sample urine and 24-hour urine aliquot. However, this study lacked information about reference value for other metabolic factors such as uric acid, oxalate, and citrate in Iranian children. In conclusion, a multicenter study for defining the reference values of urinary metabolic factors in different regions of Iran and different age categories is essential, and encouraging the laboratories to launch the software of calculating the saturation ratio are important for determining the etiology of urinary calculus formation even in those with normal laboratory tests.

CONFLICT OF INTEREST

None declared.

REFERENCES


Correspondence to:
Nakysa Hooman, MD
No 193, Ali-Asghar Children Hospital, Vahid Dasgerdi St, Tehran, Iran
Tel: +98 21 2304 6211
Fax: +98 21 2222 0043
E-mail: nhooman@tums.ac.ir

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